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**Tackling Informational Text** Pages 28-33

## Why Content Is King

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Text complexity, like beauty, is in the eye of the beholder. Simple or dense, fictional or informational, what matters most for comprehension of a particular text is whether the reader has knowledge relevant to the text. Consider the following text describing the 1920 World Series:

*The Cleveland Indians beat the Brooklyn Dodgers ... in seven games, five games to two .... The only World Series triple play, the first World Series grand slam, and the first World Series home run by a pitcher all occurred in Game 5 of this Series .... The triple play was unassisted and turned by Cleveland's Bill Wambsganss in Game 5. Wambsganss, playing second base, caught a line drive off the bat of Clarence Mitchell, stepped on second base to put out Pete Kilduff, and tagged Otto Miller coming from first base. It was the second of 15 (as of 2009) unassisted triple plays in major league baseball history, and it remains the only one in postseason play. Mitchell made history again in the eighth inning by hitting into a double play, accounting for five outs in two straight at-bats.<sup>1</sup>*

Game 5 sounds awesome—but was it awesome for everyone? What about Clarence Mitchell? If you aren't sure, who could tell you: a 7th grader who is a weak reader but who knows a lot about baseball, or a 7th grader who is a strong reader but who does not know much about baseball?

Conventional wisdom would bet on the strong reader. But cognitive science would not. Decades of research have found that reading comprehension depends much more on relevant knowledge than on text complexity (or comprehension strategies like finding the main idea). So although the strong reader with weak baseball knowledge would know that Clarence Mitchell "made history," the weak reader with strong baseball knowledge would know that it was probably the worst day of his career.

## A Shift in Our Understanding of Reading Comprehension

Up to now, the measures used to determine the readability of texts have been derived from the lengths of the sentences and the frequency with which the words in the text appear in written language. But these are crude measures derived from studies with large groups of texts and students. Although these measures can be useful as rough guides when applied to average students, they have often been used to match individual students to individual texts with a false sense of precision. Such measures create the mistaken impression that each student, at each

moment in time, has a specific reading comprehension level.

Unfortunately, the wording in reports of reading comprehension assessments typically reinforces that impression. One student is said to be reading on grade level; another is said to be some precise number of grade levels ahead or behind. If we are talking about decoding skills, we can sensibly discuss whether a student is on grade level. But when talking about reading comprehension, the grade-level notion is misleading.

There is no such thing as a general level of comprehension ability. The single score that a student receives after taking a reading comprehension test masks the fact that the test had a variety of passages on a variety of topics, and the average student read the passages with familiar content well, yet read those with unfamiliar content poorly.

The Common Core State Standards in English Language Arts and Literacy recognize this insight through two conceptual advances in the way they frame the development of reading comprehension. First, they have replaced measures of *readability*, which are based on sentence length and word frequency, with the broader concept of *text complexity*, which also takes into account qualitative criteria like text structure, style, and knowledge demands. Because of certain technical limitations in the quantitative approach, these qualitative criteria should always be in the forefront when selecting texts for classroom use. Second, the Common Core literacy standards insist that a cumulative, coherent curriculum is essential to learning to comprehend spoken and written language. The standards state,

*To build a foundation for college and career readiness, students must read widely and deeply from among a broad range of high-quality, increasingly challenging literary and informational texts. Through extensive reading of stories, dramas, poems, and myths from diverse cultures and different time periods, students gain literary and cultural knowledge as well as familiarity with various text structures and elements. By reading texts in history/social studies, science, and other disciplines, students build a foundation of knowledge in these fields that will also give them the background to be better readers in all content areas. Students can only gain this foundation when the curriculum is intentionally and coherently structured to develop rich content knowledge within and across grades. (National Governors Association Center for Best Practices [NGA] & Council of Chief State School Officers [CCSSO], 2010, p. 10)*

## Knowledge Unlocks Complex Text

This focus on building knowledge with a coherent curriculum is unique among existing standards documents. It makes the Common Core standards more congruent with insights from cognitive psychology than even the best state standards. That's partly because the chief drafters of the standards, David Coleman and Sue Pimentel, consulted the research on language and cognition, including that of Teun van Dijk and Walter Kintsch (1983), who wrote,

*One of the major contributions of psychology is the recognition that much of the information needed to understand a text is not provided by the information expressed in the text itself but must be drawn from the language user's knowledge of the person, objects, states of affairs or events the discourse is about. (p. 303)*

The importance of knowledge was tested experimentally many times in the 1980s and 1990s (Willingham, 2006). By the 1990s, a confluence of results showed that comprehension chiefly depends on knowledge of the topic at hand. In addition, more general studies of expertise showed that people with specific, relevant subject-matter knowledge far outdistance people with lower knowledge but higher general skills. Astonishingly, high-IQ and low-IQ students perform at about the same level when both groups have equal subject-matter knowledge.

All this research points in one clear direction: Any topic you want to be able to read about with comprehension is a topic you must become knowledgeable about. The more relevant knowledge you have, the less it matters whether the text is complex. Recent research by distinguished scholars Diana Arya, Elfrieda Hiebert, and P. David Pearson (2011) reinforces this point. What is most impressive about this research is that the findings surprised the researchers, which is often a mark of significant work. Here's how the researchers summarized their hypotheses and results:

*The present study was designed to address the question of whether lexical or syntactic factors exert greater influence on the comprehension of elementary science texts. Based on previous research on text accessibility, it was expected that syntactic and lexical complexity would each affect students' performance on science texts .... In order to test this hypothesis, 16 texts that varied in syntactic and lexical complexity across four different topics were constructed. Students read texts that ranged in complexity, each from a different topic.*

*Contrary to our hypotheses, syntactic complexity did not explain variance in performance across any of the four topics .... Lexical complexity significantly influenced comprehension performance for texts on two of the four topics, Tree Frogs and Soil, but not for texts on Jelly Beans and Toothpaste. This finding was consistent*

*across all participant groups, including ELLs. A possible explanation is that prior knowledge of vocabulary, rather than any established index of word frequency, determines how difficult a lexically complex text will be for a student. (pp. 119–120)*

The most plausible explanation for the different results is that the children were probably familiar with jelly beans and toothpaste, but not with soil and tree frogs. These results are at odds with the notion that measures of sentence length and vocabulary are reliable ways to determine the "right" reading level of a text for a student. On the other hand, as Arya, Hiebert, and Pearson pointed out, these findings are consistent with other work in language study (such as research by Walter Kintsch, Thomas Landauer, Donna Recht, and Wolfgang Schneider). Given enough familiarity with a topic to grasp the gist of a text, students are able to disentangle complex syntax.

## Building Knowledge Through a Coherent Curriculum

How do we ensure that students become broadly knowledgeable? The Common Core standards take a step in the right direction by calling for a better balance of fiction and nonfiction texts throughout the school day. But ultimately, reading random collections of nonfiction texts will be no more beneficial than reading random collections of fiction has been.

Fortunately, the new standards don't simply call for more informational text; they show how to accelerate knowledge and vocabulary growth through carefully sequenced, domain-based studies:

*Building knowledge systematically in English language arts is like giving children various pieces of a puzzle in each grade that, over time, will form one big picture. At a curricular or instructional level, texts—within and across grade levels—need to be selected around topics or themes that systematically develop the knowledge base of students .... The knowledge children have learned about particular topics in early grade levels should then be expanded and developed in subsequent grade levels to ensure an increasingly deeper understanding of these topics. (NGA & CCSSO, p. 33)*

The Core Knowledge Foundation now offers a comprehensive program for preschool through 3rd grade that meets both the intent and the specific requirements of the Common Core standards. The program, Core Knowledge Language Arts, can be downloaded free at [www.coreknowledge.org/ckla-overview](http://www.coreknowledge.org/ckla-overview). It includes a skills strand and a listening and learning strand.

The skills strand teaches reading and writing in tandem. The stories that children are given to read have interesting characters and plots, yet they are made up entirely of words and sounds the students have been taught. The skills strand also addresses spelling, grammar, and writing in multiple genres.

The listening and learning strand is the unique part of the program. The decoding taught in the skills strand is essential, but so is the ability to comprehend what has been decoded, and that depends on broad knowledge. The content in the listening and learning strand goes well beyond standard early-grades language arts fare to include important historical and scientific events, ideas, and people.

The lessons in this strand—which include teacher read-alouds, class discussions, vocabulary work, and extension activities—are based on the understanding that elementary students' listening comprehension outpaces their reading comprehension. The read-alouds are organized into 11–12 domains per grade; for example, The Five Senses (kindergarten); Fables and Stories (grade 1); Early Asian Civilizations (grade 2); and Ecology (grade 3). Figure 1 shows domains for grades K–2. Students receive about 10–15 days of instruction and enjoy a series of 10 or so read-alouds in each domain. Lesson by lesson, the read-alouds slowly become longer and more complex.

Both fiction and nonfiction appear throughout each of these domains. The curriculum's high-quality fiction is an excellent source of information—and engaging stories make that information easy to remember. In addition, the domains are carefully organized to build on one another within and across grades. The arrows in Figure 1 highlight some connections, but many more will be apparent to those who take the time to consider the domains.

### FIGURE 1. Domains and Sample Connections in the Listening and Learning Strand of Core Knowledge Language Arts

Kindergarten	Grade 1	Grade 2
Nursery Rhymes and Fables	Fables and Stories	Fairy Tales and Tall Tales
The Five Senses	The Human Body	Early Asian Civilizations
Stories	Different Lands, Similar Stories	The Ancient Greek Civilization
Plants	Early World Civilizations	Greek Myths
Farms	Early American Civilizations	The War of 1812
Native Americans	Astronomy	Cycles in Nature
Kings and Queens	The History of the Earth	Westward Expansion
Seasons and Weather	Animals and Habitats	Insects
Columbus and the Pilgrims	Fairy Tales	The U.S. Civil War
Colonial Towns and Townspeople	A New Nation	Human Body: Building Blocks and Nutrition
Taking Care of the Earth	Frontier Explorers	Immigration
Presidents and American Symbols		Fighting for a Cause

■ Literature ■ Science ■ Social studies

Note: Arrows indicate a few of the connections between domains. Many more connections are possible.

Because Core Knowledge Language Arts values interdisciplinary materials that give young children an accurate, holistic view of the world, almost all of the domains contain a mix of literary, scientific, and historical texts. Here are a few examples from the kindergarten domains. The Five Senses domain has read-alouds about all five senses plus read-alouds about Ray

Charles and Hellen Keller. Similarly, the Native Americans domain has a short story titled "Little Bear Goes Hunting." Some domains are so varied that they really belong in at least two categories. For example, the Farms domain could be marked as science or social studies. Likewise, the Kings and Queens domain could be categorized as literature or social studies.

This figure is adapted with permission from a figure created and published by Lisa Hansel while she was editor of *American Educator*. The original figure was based on the pilot version of Core Knowledge Language Arts and was published in the winter 2010–11 issue of *American Educator*.

## A Coherent Curriculum in Action

As soon as the Core Knowledge Foundation began posting Core Knowledge Language Arts online, teachers began sharing it with one another. For example, we heard from Deanna Maynard, an instructional coach and National Board–certified teacher at Matewan Elementary School in Mingo County, West Virginia. She reported that the teacher read-alouds in the listening and learning strand were helping teachers in her school transition from state standards and a traditional basal series to the new Common Core standards.

Maynard gives this account of a kindergarten teacher doing a read-aloud on dressmakers, tailors, hatters, and cobblers that falls in the Colonial Towns and Townspeople domain:

*As the students came to the carpet, they were singing, saying, and chanting the rhymes from the previous lesson relating to the trades in colonial times, like "Pat-a-cake" and "Baa Baa Black Sheep." As the teacher opened the discussion with, "I'm thinking of a tradesperson who makes thread out of cotton, flax, or wool," the students began talking with their partners. One student said, "I think it's the miller." The partner, however, disagreed saying, "The miller has the flour from the wheat. The miller doesn't make the thread." They continued discussing until pairs were asked to share out. Several students had thought it was the miller, and some suggested the weaver. One student gasped, "Wait! The weaver uses the thread. He gets it from the spinner!"*

*As the teacher began the read-aloud, the students listened closely. When they found out that lots of children's clothing was homemade, and that a child might have only two sets of clothing, they continued with a rich discussion about what might happen if they had to order clothes to be specially made. They continued to hang on every word, and when the discussion began, they had a lot to say. One girl exclaimed, "My mom would not like it if I only had two things to wear!"*

*While the students were at lunch, I sat down with the kindergarten teacher to ask her about her impressions of the lessons. She discussed how the seamless, purposeful use of the nursery rhymes allowed a natural inclusion of phonemic awareness activities to the lesson, while reinforcing vocabulary and content knowledge. She shared that when she displays the image cards on her interactive whiteboard, students are willing to discuss and make connections with the images more readily than they are with text (although the success with the images has increased their text-based connections as well).*

*For example, one image card for this unit featured a church with clouds in the background. A student*

*observed that they were cumulus clouds, which she had learned about several weeks ago in the Seasons and Weather unit. The vocabulary was so comfortable for her that she was able to accurately use it to describe a new image in a different context.*

With several years of such content-rich, knowledge-building instruction, these students will be ready for rigorous, complex texts on a wide variety of topics.

## A Solid Foundation of Knowledge

Core Knowledge Language Arts is just one example of a coherent English language arts curriculum in which knowledge and skills grow together. What matters is not the program, but its research foundation. To read with comprehension, students need to acquire broad knowledge. Therefore, they need a systematic, content-rich, grade-by-grade curriculum. By creating a schoolwide curriculum with connections across content areas and grade levels, educators can ensure that

- important content and skills are not overlooked,
- their curriculum spirals instead of accidentally becoming redundant, and
- the early grades provide a base of vocabulary and knowledge that will ease the transition from learning to read to reading to learn.

In closing, we'd like to make a special plea for highly mobile students. Even if every school had an excellent curriculum, students who change schools frequently would still be at a huge disadvantage. Some of the disruption to a mobile child's education cannot be prevented by schools, but the gaps in those children's knowledge could be greatly reduced. How? By schools sharing a curriculum. In some urban areas, for example, there are predictable patterns of students cycling in and out of a relatively small number of schools. Given the importance of systematically and coherently building students' knowledge and skills, we hope to see more schools working together on a shared curriculum for the sake of their shared students.

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## Endnote

- <sup>1</sup> This description of the 1920 World Series was found on Wikipedia on May 17, 2013, at [http://en.wikipedia.org/wiki/1920\\_World\\_Series](http://en.wikipedia.org/wiki/1920_World_Series).

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